



Pioneers for Sustainable Communities

UTILITIES & ENVIRONMENTAL SERVICES

Erik Pearson
Environmental Services Manager

September 11, 2017

Pioneers For Sustainable Communities (PFSC)



PFSC is a Partnership between CSU East Bay and the City of Hayward



PFSC Littering & Composting Projects



Fall

- ▶ Philosophy – Environmental Ethics

Winter & Spring

- ▶ Relational Communications in Organizations
- ▶ Quantitative Communication Research Methods
- ▶ Interactive Content Delivery
- ▶ Applying Theory & Methods of Human Development

PFSC – Hang Tags



CLEANUP
ISN'T COMPLETE
until you compost
your food scraps



Keep food scraps
out of the landfill.

Thanks for
composting

**KEEP THOSE
SCRAPS
COMING!**

ReadySetRecycle.org

All food scraps and
food soiled paper
go in the green bin,
including:



NO PLASTIC, GLASS OR FOIL.
Learn more at ReadySetRecycle.org

A partnership of **HAYWARD** | **STOPWASTE**
at KIDDER • at WOOD • at ACHARD

A MEAL
ISN'T MADE
until you compost
your food scraps



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Questions & Discussion





East Bay Energy Watch

UTILITIES & ENVIRONMENTAL SERVICES

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Environmental Services Manager

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East Bay Energy Watch



EBEW is a Local Government Partnership Program of PG&E

- ▶ EBEW is one of 21 local government partnerships
- ▶ EBEW includes Alameda and Contra Costa Counties



EBEW Programs



- ▶ Residential
 - ▶ California Youth Energy Services (CYES)
- ▶ Government
 - ▶ Civic Spark
- ▶ Small/Medium Size Businesses

Small/Medium Business Program



Stephen Wolcott

Program Manager, Sustainable Energy Use

DNV GL - Energy





City of Hayward
SAFER, SMARTER, AND GREENER

EAST BAY
energy
watch



An Energy Technology Powerhouse

No. 1

**Independent
technical adviser on
renewable energy**

25

**Leading certification
body with more than
25 standards and
guidelines published**

Largest

**Energy Watch
Partnership**

2,500

**More than 2,500
independent energy
experts**

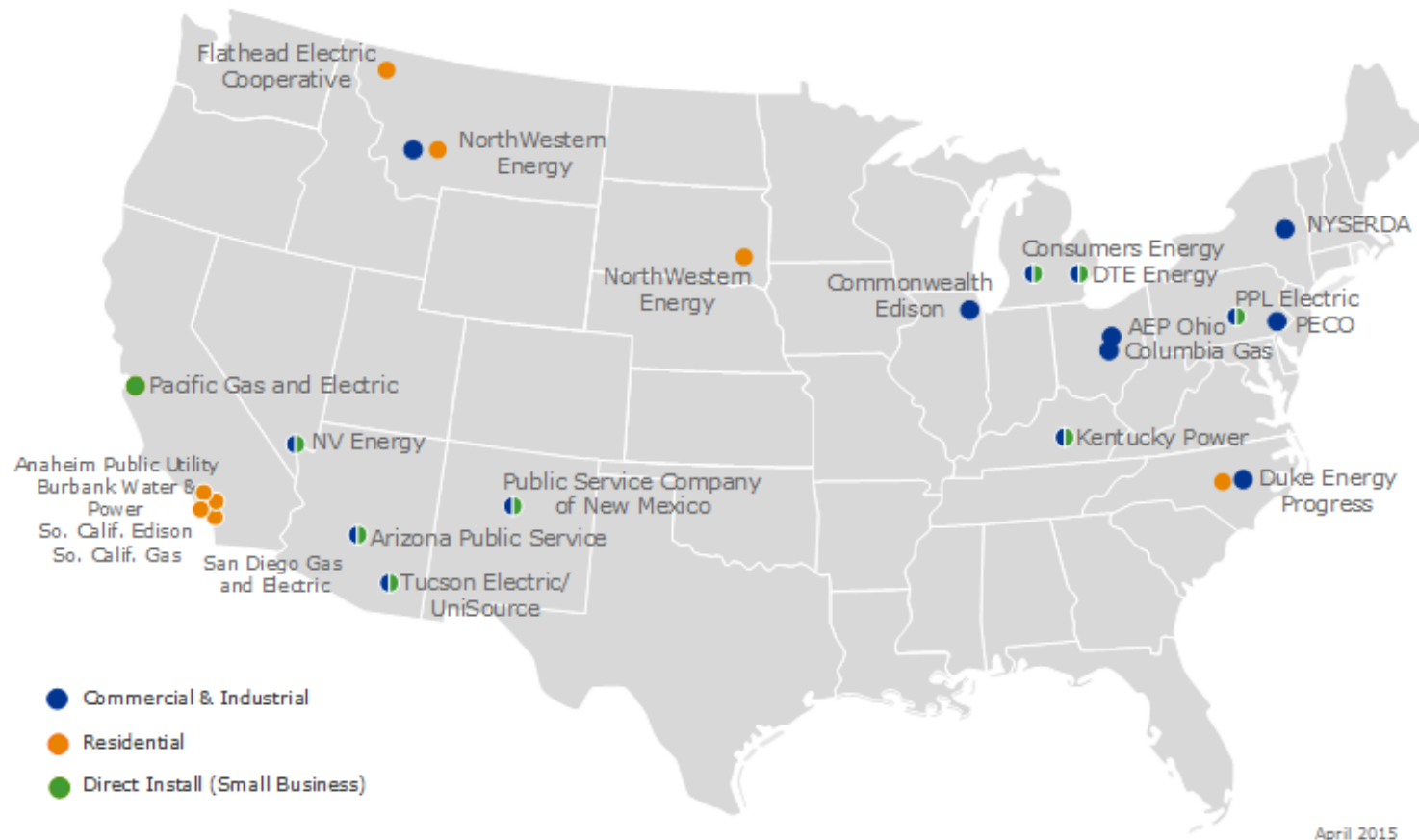
1350

**More than 1350
projects facilitated
by EBEW in 2016**

15

**Years experience in
energy in the East
Bay**

Implementing Programs Nationally



2014

1.7 TWh
Electric
Savings

22 M
Therms
Gas Savings

Over \$160M
Incentives
Paid

Over 43,000
Applications
Processed

An Evolution in Service



- Serving the East Bay since 2002

- 6,500 projects
- 100,000,000+ kWh
- \$16,000,000+ incentives

- EBEW services are funded by California utility ratepayers under the auspices of the California Public Utilities Commission (CPUC)
- PG&E/MCE public sector and commercial customers are eligible for no-cost comprehensive energy assessments

- Promote the installation of energy efficient technologies for private and public sectors
- Reduce out-of-pocket costs to customers for energy savings
- Allows Utilities to reach an underserved market segment
- Energy efficiency technologies including LED lighting, controls, refrigeration and HVAC

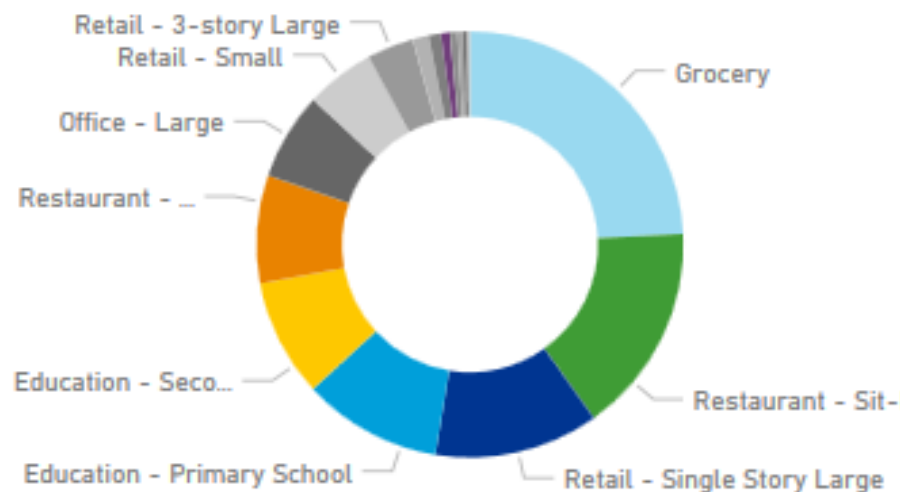
Program Benefits

- Receive a no-cost, no-obligation facility assessment to identify potential energy saving opportunities
- Improves energy efficiency, increasing the use of renewable energy, and conserving water – all of which support the City's sustainability and long term greenhouse gas reduction goals
- Get recommendations and estimates of energy savings, project cost, payback period, and the incentive amount to be paid by the EBEW program
- Approved energy saving equipment is installed by a local, pre-qualified contractor
- Receive potential cost reductions on your energy bill
- Experience average payback of less than three years

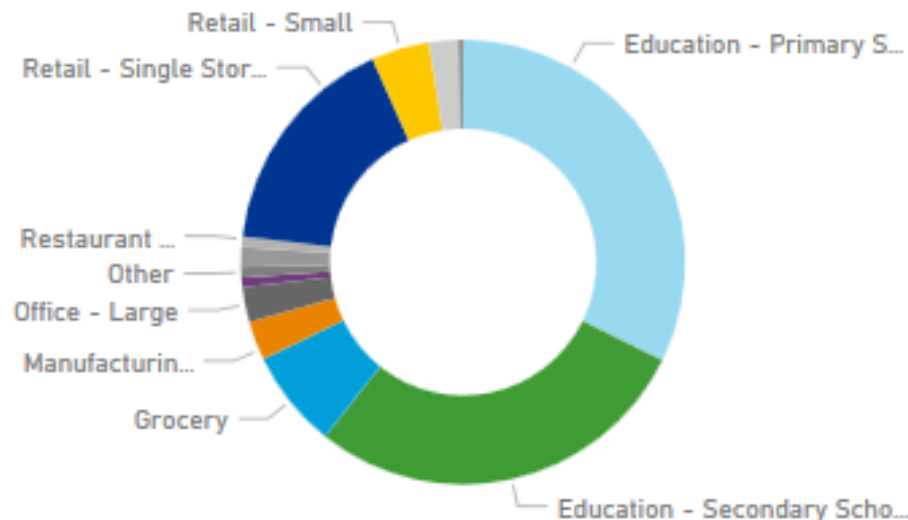


Savings by Building Category

EBEW 2017



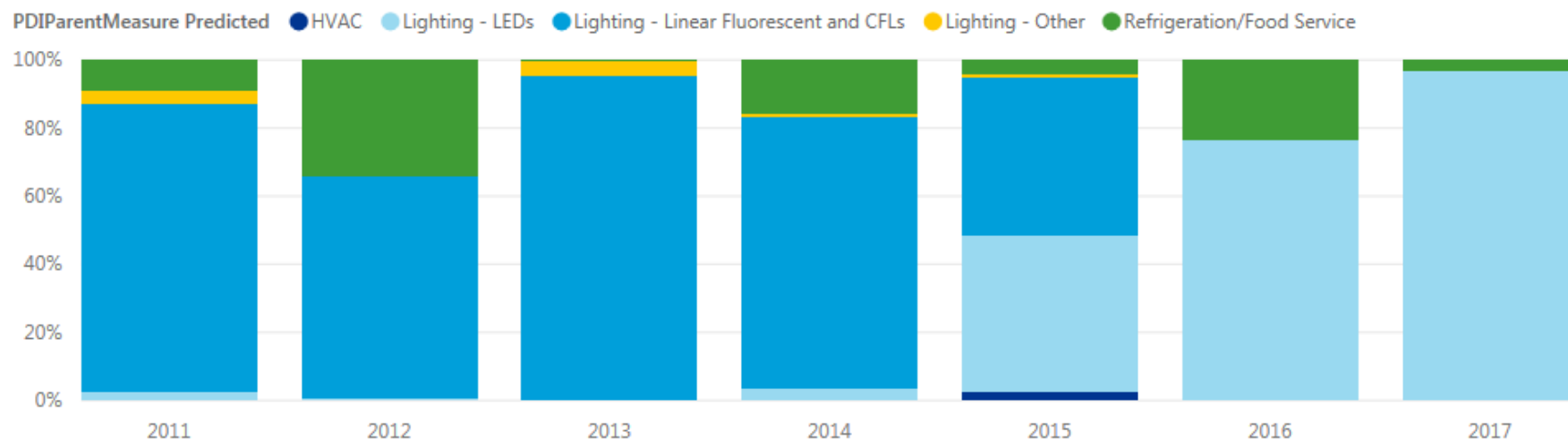
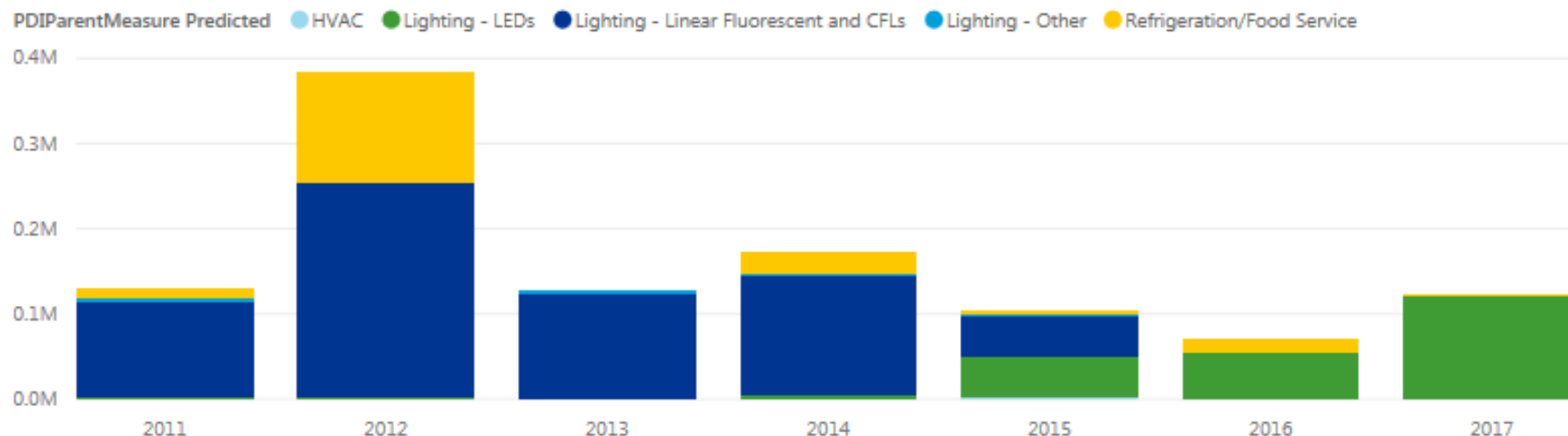
Hayward 2017



2017 EBEW Hayward Project Fast Facts:

- Completed over 53 projects (15 Hard to Reach businesses)
- From 2012 to 2016 DNV GL/East Bay Energy Watch has achieved 4,650,000 kWh in energy savings
- Installed energy efficiency lighting at 32 Hayward School District sites
- Achieved over 1,413,637 kWh in claimable energy savings
- Created over \$1,371,106 in economic activity (total project costs)
- Distributed over \$130,000 in incentives

Hayward 2011-Present Total Incentive and by Measure



Past, Present, and Future Projects



In 2016 the East Bay Energy Watch worked with local contractors to retrofit Pacific Cheese's Office and Warehouse facility with LED lighting. Combined with onsite generation, this site is now a zero net building. Pacific Cheese will be saving an estimated 310,000 kWh per year and over \$60,000 annually on their electricity bill



East Bay Energy Watch worked with the Hayward School District to service 30+ sites with new LED lighting technology achieving projected energy savings of over 1,000,000 kWh and \$190,000 annually on their electricity bill



Tennyson Street Project will begin in September 2017. East Bay Energy Watch will conduct an outreach campaign targeting commercial 'Hard to Reach' businesses to install LED lighting, refrigeration, and HVAC technologies.

Thank You!

Q & A

Stephen Wolcott

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SAFER, SMARTER, GREENER

Tennyson Corridor Campaign



Questions & Discussion



Progress Report for May 2017 SMB Program



2017 Target Goal (kWh)	Cumulative Savings to Date (kWh)	% of Total Goal	In Construction (kWh)
10,436,422	1,276,520	12.2%	2,710,483

Municipality	# of Audits	Projects In Construction	Completed Projects	Completed kWh	In Construction kWh
Albany	9	-	9	22,365	3,195
Antioch	4	3	2	31214	94571
Baypoint	1	1	-	-	35,346
Berkeley	38	22	34	170,388	265,324
Brentwood	1	-	-	-	-
Castro Valley	16	15	1	2,904	258,828
Concord	7	2	10	83,944	23,847
Danville	4	-	4	14,037	-
Dublin	4	-	4	49,825	-
El Cerrito	7	-	9	71,338	-
El Sobrante	10	2	8	85,152	5,826
Emeryville	5	2	3	26,449	22,097
Fremont	15	10	13	904	150,023
Hayward	43	39	5	47,051	1,103,829
Hercules	8	1	11	22,115	12,430
Lafayette	2	-	2	1,796	-
Livermore	2	-	2	31,257	-
Martinez	3	2	1	4,328	5,802
Newark	2	1	1	3,816	4,289
Oakland	31	9	29	127,607	79,184
Orinda	2	-	3	5,797	-
Pacheco	2	-	2	15,795	-
Pinole	5	4	4	22,536	81,243
Pittsburg	2	1	1	2,099	20,195
Pleasant Hill	12	1	11	47,952	3,187
Pleasanton	11	-	7	46,653	-
Richmond	78	55	30	224,784	413,831
Rodeo	2	1	4	10,085	30,917
San Leandro	4	4	3	15,003	18,201
San Lorenzo	4	-	4	8,729	-
San Pablo	9	2	10	11,421	28,100
San Ramon	23	18	16	1	9,931
Union City	3	1	2	24,133	2,624
Walnut Creek	6	1	6	45,042	37,663
TOTAL	375	197	251	1,276,520	2,710,483

*As of May 19, 2017



2015 Greenhouse Gas Emissions Inventory

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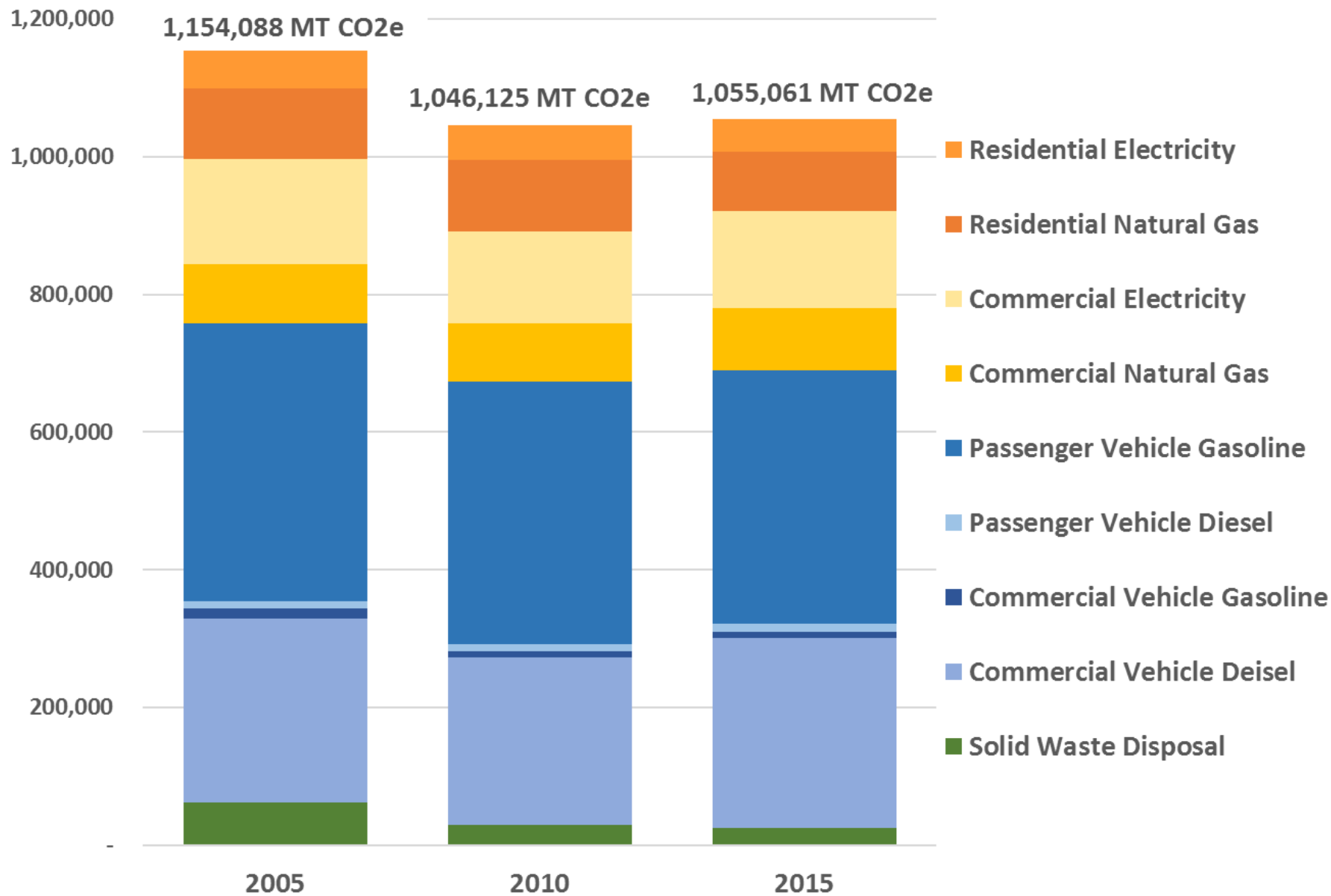
Mary Thomas, Management Analyst
& Chris Sturken, CivicSpark Fellow

September 11, 2017

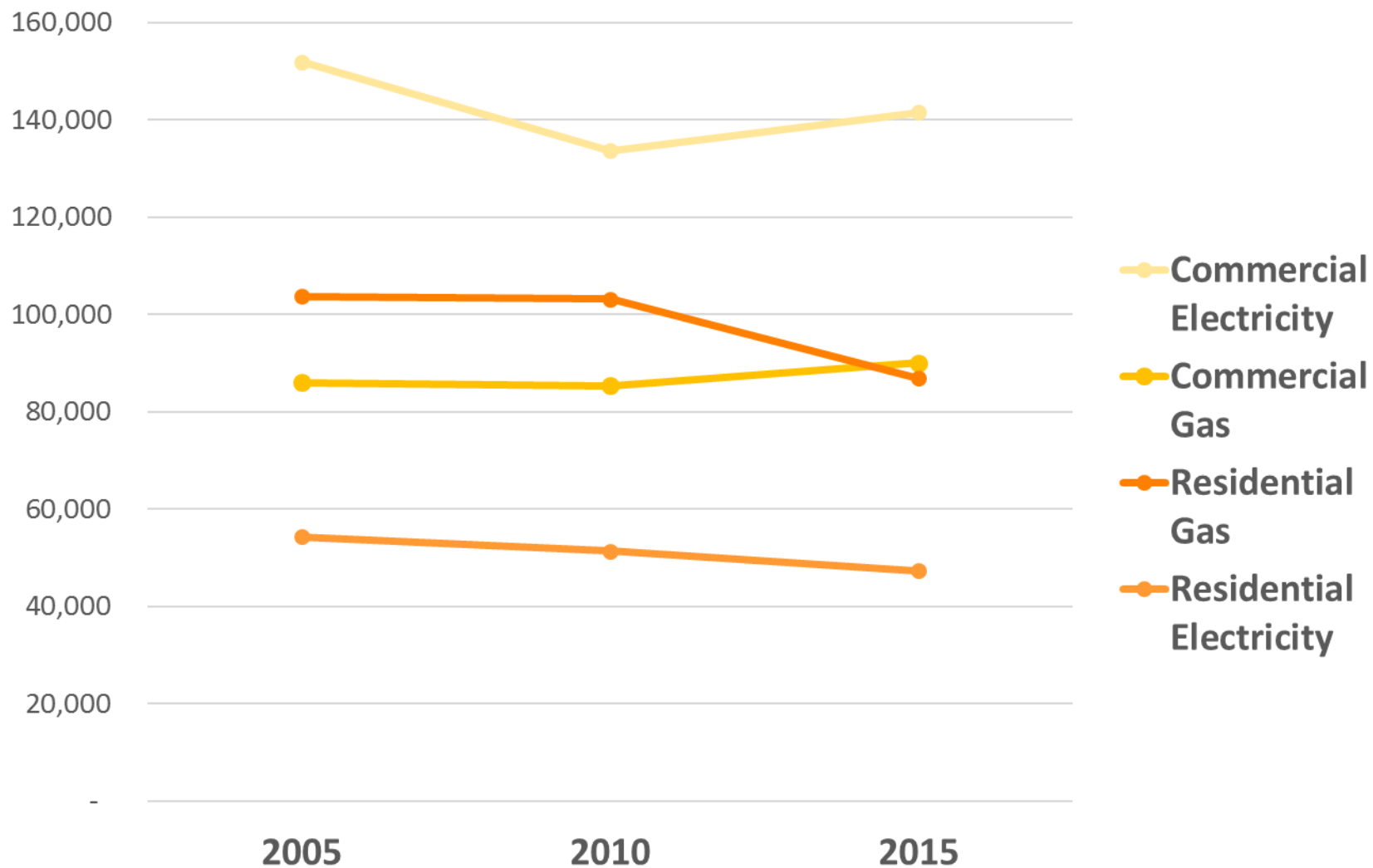
Inventory Results



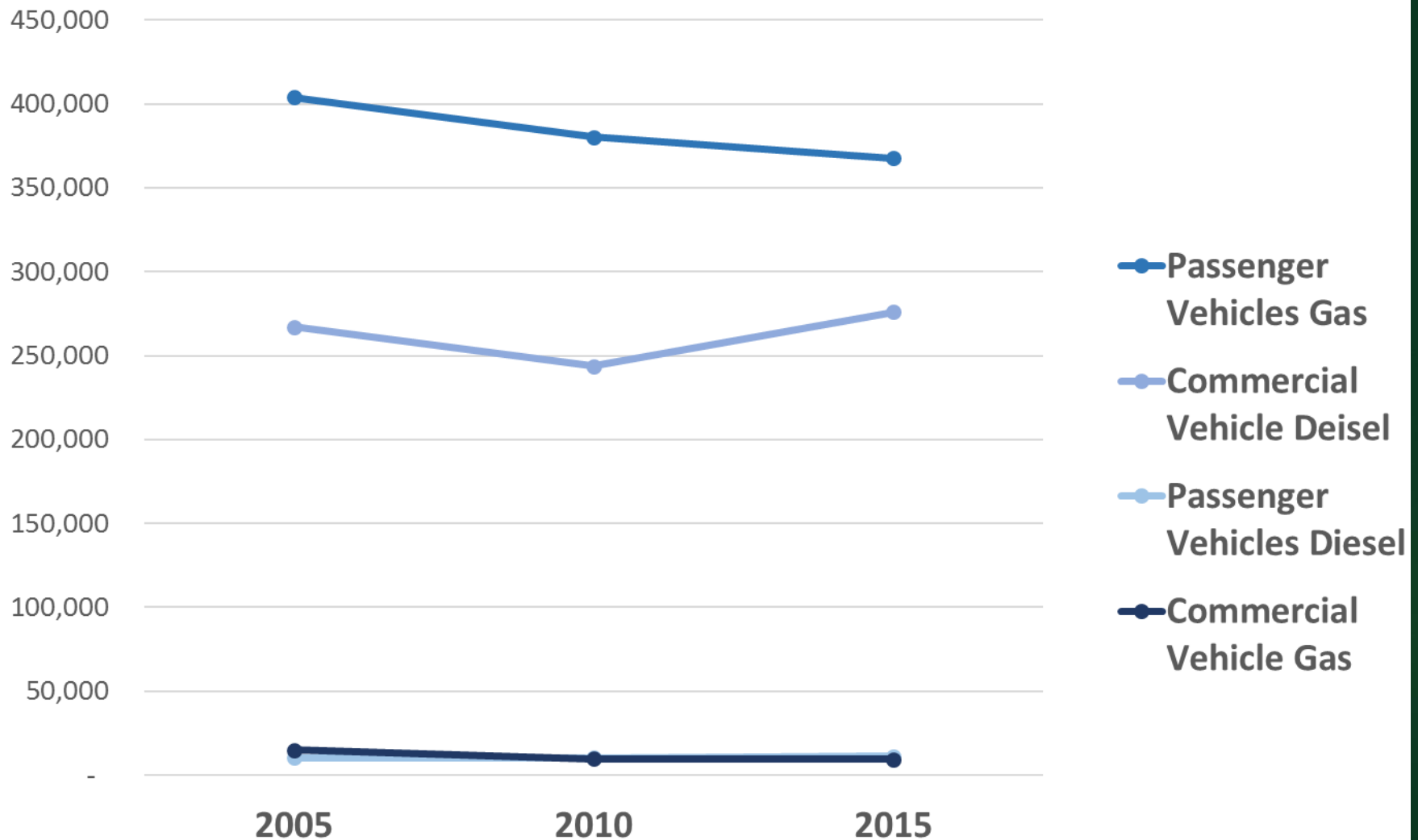
	2005	2010	% Change from 2005	2015	% Change from 2005
Total Emissions	1,154,088	1,046,125	-9.4%	1,055,061	-8.6%
Hayward Population	140,305	146,002	4.1%	159,104	13.4%
Total Emissions/Capita	8.23	7.17	-12.9%	6.63	-19.4%



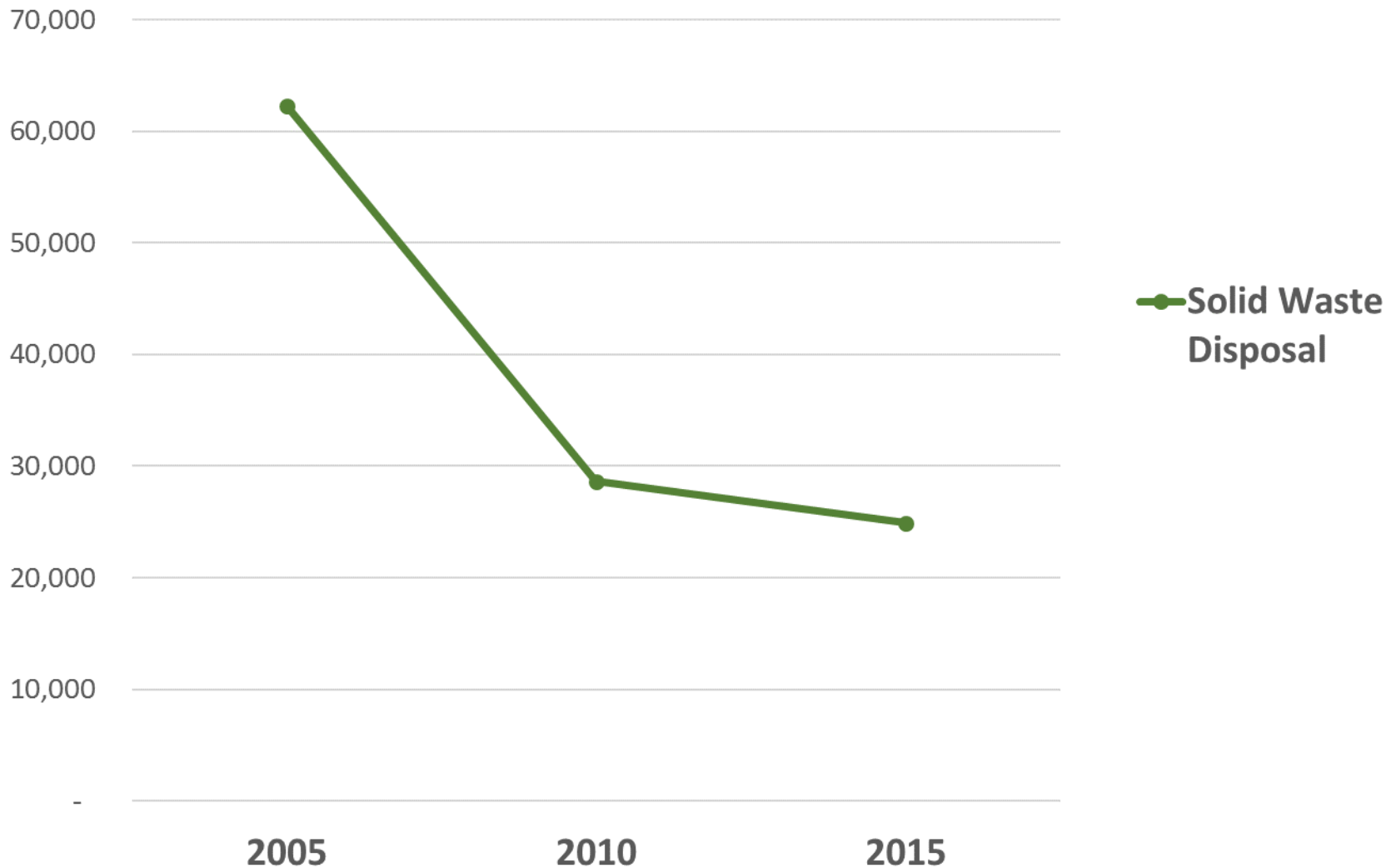
Energy Sector



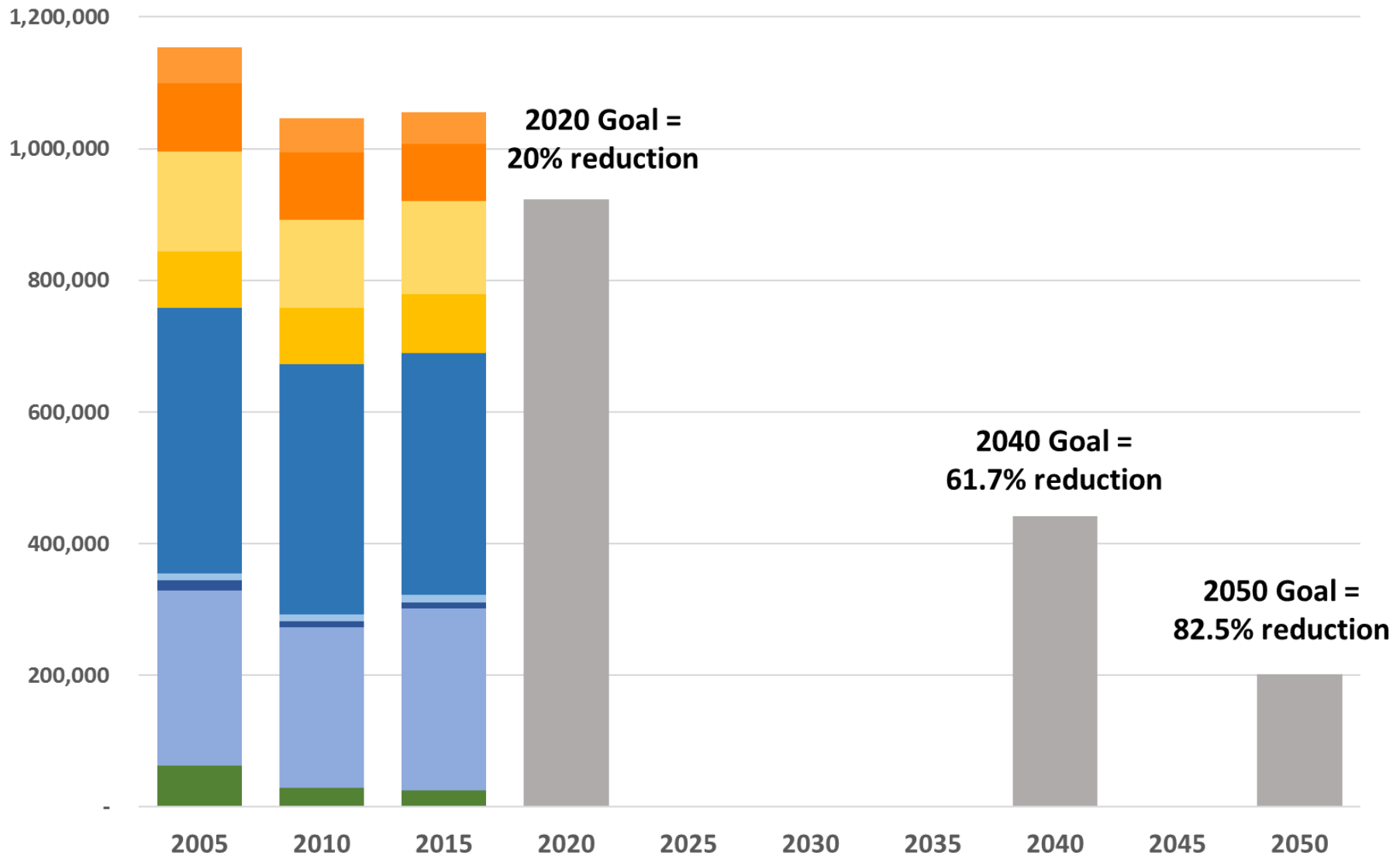
Transportation Sector



Solid Waste Sector



Reduction Goals



Progress Towards the 2020 Goal through East Bay Community Energy



	EBCE Assumptions			Total GHG Reduction from 2005 – 2020
	GHG-Free Electricity	Opt Out Rate	DA Load Switch to EBCE	
1	73%	5%	20%	-9.1%
2	85%	5%	50%	-13.3%
3	100%	10%	65%	-20.1%

The 2040 Goal

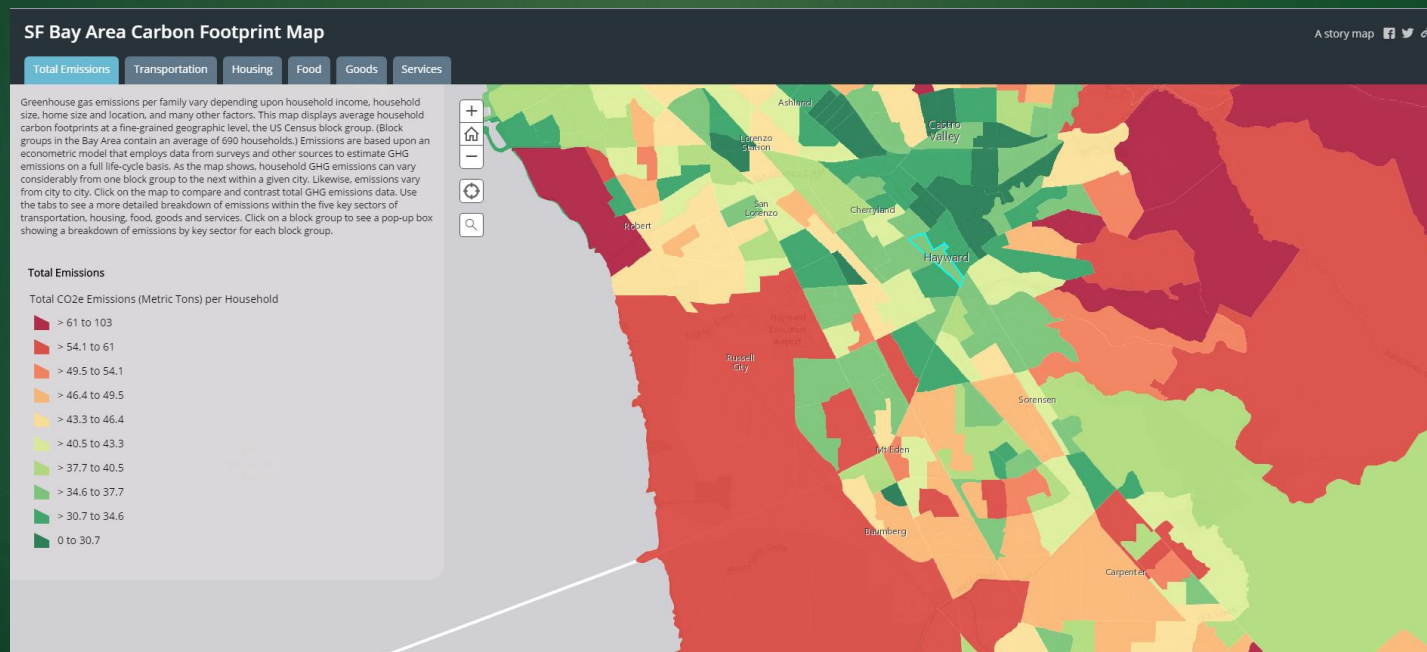


Hayward GHG Emissions Summary Table (MT CO2e)	2005	2015	2040	% Change from 2015	% Change from 2005
Electricity Emissions	206,182	188,853	47,213	-75.0%	-77.1%
Natural Gas Emissions	189,608	176,858	53,057	-70.0%	-72.0%
Transportation Emissions	696,013	664,442	332,221	-50.0%	-52.3%
Solid Waste Emissions	62,285	24,909	9,964	-60.0%	-84.0%
Total Emissions	1,154,088	1,055,061	442,455	-58.1%	-61.7%

Limitations of the Inventory



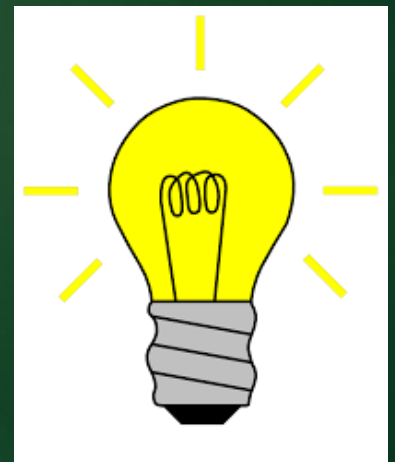
- Frequency
- Missing emissions sources



Next Steps



- ▶ Pursue regional cooperation on inventories to increase frequency
- ▶ Return to Committee with potential 2025 and 2030 goals
- ▶ Update strategies to achieve goals



Questions & Discussion



Energy Sector



		2005	2010	% Change*	2015	% Change*
Residential Electricity	kWh	242,674,455	252,427,371	4%	241,804,751	0%
	Emission Factor	0.000224	0.000203	-9%	0.000196	-12%
	MT CO2e	54,288	51,335	-5%	47,334	-13%
Residential Gas	Therms	19,496,859	19,400,629	0%	16,326,344	-16%
	Emission Factor	0.005317	0.005317	0%	0.005317	0%
	MT CO2e	103,674	103,162	0%	86,815	-16%
Commercial Electricity	kWh	678,989,309	657,204,663	-3%	722,945,746	6%
	Emission Factor	0.000224	0.000203	-9%	0.000196	-12%
	MT CO2e	151,894	133,653	-12%	141,519	-7%
Commercial Gas	Terms	16,160,661	16,041,943	-1%	16,933,488	5%
	Emission Factor	0.005317	0.005317	0%	0.005317	0%
	MT CO2e	85,934	85,303	-1%	90,043	5%
Total Energy MT CO2e		395,790	373,453	-5.6%	365,711	-7.6%

Transportation Sector



		2005	2010	% Change from 2005	2015	% Change from 2005
Passenger Gas	Miles (VMT)	977,958,199	916,538,305	-6.3%	936,472,744	-4.2%
	Emission Factor	0.000413	0.000415	0.5%	0.000393	-4.9%
	MT CO2e	403,877	380,315	-5.8%	367,744	-8.9%
Passenger Diesel	Miles (VMT)	15,579,684	16,459,159	5.6%	19,305,403	23.9%
	Emission Factor	0.000656	0.000628	-4.2%	0.000583	-11.1%
	MT CO2e	10,216	10,342	1.2%	11,258	10.2%
Commercial Gas	Miles (VMT)	10,883,273	7,069,442	-35.0%	6,832,281	-37.2%
	Emission Factor	0.001369	0.001367	-0.1%	0.001365	-0.3%
	MT CO2e	14,895	9,661	-35.1%	9,325	-37.4%
Commercial Diesel	Miles (VMT)	165,254,960	149,177,668	-9.7%	174,788,663	5.8%
	Emission Factor	0.001616	0.001634	1.1%	0.001580	-2.2%
	MT CO2e	267,025	243,726	-8.7%	276,114	3.4%
Total Transportation MT CO2e		696,013	644,044	-7.5%	664,442	-4.5%

Solid Waste Sector



		2005	2010	% Change from 2005	2015	% Change from 2005
Waste Sent to Landfill	Tons of waste	173,509	119,483	-31.1%	108,106	-37.7%
	Emission Factor	0.358973	0.239595	-33.3%	0.230410	-35.8%
	MT CO2e	62,285	28,628	-54.0%	24,909	-60.0%
Total Solid Waste MT CO2e		62,285	28,628	-54.0%	24,909	-60.0%





Design and Construction Approach for the Solar Photovoltaic System Project - Phase II at Water Pollution Control Facility

September 11, 2017

UTILITIES & ENVIRONMENTAL SERVICES

Alex Ameri
Director of Utilities & Environmental Services

September 11, 2017

Objective



Seeking comments and direction regarding the appropriate design and construction implementation approach for construction of an additional one-megawatt or larger solar photovoltaic system at the Water Pollution Control Facility (WPCF).

Approach used for Existing System at WPCF



- Initially Envisioned as a 500 KW privately designed, constructed, owned, and operated facility with sale of power to City through a Power Purchase Agreement (PPA)

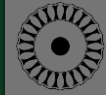
New Approach: City Ownership



- Based on staff economic analysis, considering both a CEC loan and Net Energy Metering (NEM) tariff,
- Council approved a switch to City Ownership and increased the Power to 1 MW.



New Approach: City Ownership



- REC Solar of San Luis Obispo was selected through a competitive process.
- System was completed and has been in successful operation since late 2011.
- At 1 MW, System was sized at maximum allowed under NEM.

Addition of Co-generation



- City added a 1.137 MW combined Heat and Power facility at WPCF.
- Co-gen produces more power than needed at WPCF.
- With additional export to grid, NEM tariff did no longer work for the City.



Switch to RES-BCT Tariff



- Staff found a new tariff called Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT) and put both solar and Co-gen system on it.
- RES-BCT tariff allows systems up to 5 MW (with certain limitations).
- City became the first municipality in PG&E service area to use RES-BCT.

Solar PV Phase II



- Council has expressed a desire to increase solar PV at WPCF.
- There is funding in current CIP for expansion of existing solar project.
- Staff is prepared to start the project implementation.

Various Approaches to Design & Construction



- Design-Bid-Build
- Design Build
- Committee's Direction
 - D-B-B vs. D-B
 - If D-B, should staff begin discussions with REC Solar first?

Questions & Discussion





Proposed 2017 Agenda Planning Calendar

UTILITIES & ENVIRONMENTAL SERVICES

September 11, 2017

Suggested Agenda Topics



November 2017

Car Sharing

Recycled Water Program

Review of Last Winter's Mountain Tunnel Shutdown

Addressing Litter from Disposable Food Packaging

California Youth Energy Services (CYES) Annual Report (added)

2018 Agenda Planning Calendar

Unscheduled Items

Sustainable Groundwater Plan

Accelerating Multifamily Building Upgrades (CEC grant)

Stormwater Trash Reduction Requirements

Laundry to Landscape Ordinance

Progress Toward 2025 ZNE Goal

Tiny Homes